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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Fumio ABE et al.

Group Art Unit: 1764

Serial No.: 08/857,585

Examiner: Nadine Georgianna Norton

Filed: May 16, 1997

For: HEATER AND CATALYTIC CONVERTER

DECLARATION UNDER 37 CFR 1.132

Commissioner for Patents
Washington, D. C. 20231

Sir:

Naomi NODA, a citizen of Japan, residing at 13, Aza-goura, Mabiki, Yamato-cho, Ichinomiya-city, Aichi-prefecture, 491 Japan declares that:

(1) she is a scientist who majored in the catalyst technology for exhaust gas purification;

(2) she is one of the inventors of U.S. Patent Nos. 5,459,119, 5,376,610, and 5,439,865;

(3) she is familiar with the prosecution history of the above-identified application; and

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(4) she has carried out or supervised the following experiment to demonstrate that the features of the claims, particularly the features of claims 15 to 18, give properties or characteristics of an unexpected (and patentable) nature compared to related materials.

EXPERIMENT AND RESULTS

The experiment reported below involves zeolite A to G discussed in the specification, and also zeolites H and I.

Zeolite H and zeolite I were prepared by subjecting zeolite G to an ion-exchange treatment with an ammonium solution, and then subjecting the resultant product to heat treatment to obtain zeolites having alkali contents of 0.16 wt. % and 0.08 wt. %, respectively.

Other experiment conditions were the same as those of Examples 1 to 8 and Comparative Examples 1 to 2 of the present specification. The results are shown in the Table below, together with data for zeolites A, B, C, D, and G that are extracted from Table 1 on page 22 of the present specification.

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Table: Result of Experiment

Zeolite	Si/Al molar ratio	Alkali content (wt.%)	BET Specific Surface Area (m ² /g)			
			Prior to heat treatment	After heat treatment		
				At 900°C	At 1,000°C	At 1,100°C
Zeolite A	14	< 0.1	360	120	30	<1
Zeolite B	48	< 0.1	410	400	300	30
Zeolite C	130	< 0.1	415	410	300	285
Zeolite D	215	< 0.1	405	405	360	320
Zeolite G	200	0.85	350	30	5	< 1
Zeolite H	200	0.16	350	195	40	5
Zeolite I	200	0.08	350	350	350	250

DISCUSSION

As is clear from the data reported above, a zeolite can show a good retention of BET Specific Surface Area, even at an elevated temperature such as 1,000 °C or more, if the zeolite alkali content is 0.1 or less, provided that the Si/Al molar ratio is at least 48.

This property is considered quite useful because an exhaust gas often reaches a temperature of 1,000 °C or more under unfavorable driving conditions.

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The undersigned further declares all the statements made herein of her own knowledge are true and that all the statements made on information and belief are to be true; and further that these statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States code and that such false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: March 7, 2003 Naomi Noda
Naomi NODA